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EXAMINER	
DHINGRA, RAKESH KUMAR	
ART UNIT	PAPER NUMBER
1792	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/564,066	BLATTNER ET AL.	
	Examiner	Art Unit	
	RAKESH K. DHINGRA	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 September 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 15-26* is/are pending in the application.

4a) Of the above claim(s) *18,19 and 24-26* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13,15-17 and 20-23* is/are rejected.

7)☒ Claim(s) *23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *6/13/08* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/13/08 has been entered.

Election/Restrictions

Applicant's election with traverse of Group I (apparatus – substrate storing device with controller) with claims 1-13, 15-17 and 20-23 reading on the elected group, in the reply filed on 9/25/08 is acknowledged. The traversal is on the ground(s) that the apparatus and process claims relate to general inventive concept of stacking and moving substrates, and that the apparatus claims require the special technical features of the process as claimed in the apparatus claims, particularly with respect to Group I and Group III as they provide for similar technical features. This is not found persuasive because as explained in the last office action, the apparatus of Group I (substrate storing device with controller) and the process (for handling disk shaped substrates) have different special technical features, like, a control unit programmed for moving the tool via said moving means such that the tool divides the plurality of stacked storage elements into an upper stack and a lower stack etc (details as given in claim 1). Thus, apparatus of group I and the process of group III do not relate to a single general inventive concept.

Further, inventions of group I and II have different special technical features like, a device for storing plate shaped objects having a tool with first and second contact surfaces and a control unit programmed for moving the tool (for invention of group I), and a transport container with locking means for sealing the transport container (for invention of Group II).

Additionally as indicated above, invention of group II (transport container with locking means) and invention of group III (process for handling disk shaped substrates) have different special technical features, as already indicated above and thus do not relate to a single general inventive concept.

The requirement for restriction is still deemed proper and is therefore made FINAL.

Drawings

The drawings were objected in the last office action to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

Some examples of such missing reference numbers were given previously, out of which the following errors are still to be corrected:

Figure 1 - Reference number 32 (handling device) is not shown in the drawing (per specification – para. 0061);

Figure 5a -5d: Reference number 60 (gripper) is not shown in the drawing (per specification – para. 0064).

Applicant may check all the drawings for any more similar errors and correct the same.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claim 23 is objected to because of the following informalities:

line 3 - the claim recites "cover late" which is misspelled and should be corrected to "cover plate".

Appropriate correction is required.

Response to Arguments

Applicant's arguments with respect to claims 1-13 and 14-26 have been considered but are moot in view of the new ground(s) of rejection as explained hereunder.

Applicant has amended claim 1 by adding new limitations like "a controlled unit programmed for" and "said moving means".

Further, applicant has elected group I, claims 1-13, 15-17 and 20-23 for prosecution in his response dt. 9/25/08 to the Election Requirement issued on 8/29/08.

Accordingly, claims 1-13 and 15-26 are now pending and active out of which claims 1-3, 15-17 and 20-23 are active.

New references [Kyouno (US 2002/0018703) in view of Harada et al (US 5,112,641)] when combined read on amended claim 1 limitations. Accordingly claims 1-5, 8, 12, 13, 15-17 and 20 have been rejected under 35 USC 103 (a) as explained below. Further, balance claims 6, 7, 9-11, 21 and 22 have also been rejected under 35 USC 103 (a) as explained below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-5, 8, 12, 13, 15-17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kyouno (US 2002/0018703) in view of Harada et al (US 5,112,641).

Regarding Claims 1, 4: A device for storing plate-shaped substrates the device comprising:
a plurality of consecutive storage elements 2 stacked in a stacked direction, each storage element accommodating at least one substrate;
a means for depositing a substrate in each of the storage elements;

Further, applicant has invoked 35 USC 112, 6th paragraph for above claim limitation "means for depositing a substrate in each of the storage elements", for which the disclosed structure is reference number 16 (Figure 2 and abstract).

Kyouno teaches a tapered portion 2d (means for depositing substrate in each storage element 2);

a tool 7 (locking device) having a first storage element contact surface 7A (with locking pin 7c) and a second storage element contact surface 7B (also having locking pin 7c), said first storage element contact surface 7A engaging a first storage element 2A;

Further, applicant has invoked 35 USC 112, 6th paragraph for claim limitation "a moving means for moving said tool relative to said stacked storage elements", for which the disclosed structure is a tool reference number 50 that is coordinated with moving means for handling the wafers in a wafer stack (Figure 5 and page 10, lines 10-12 and page 11, lines 11-13).

Kyouno teaches a tool 7 that is provided motion relative to storage elements 2 through moving means 4, via a stacking stage 5 (that is, moving the tool 7 relative to said stacked storage elements 2).

Kyouno further teaches the moving means 4 that moves the stacking stage 5 (relative to tool 7) such that the first storage element contact surface 7A engaged with said first storage element 2A such that

said second storage element contact surface 7B engages a second storage element 2B adjacent said first storage element 2A, whereby the moving means 4 is controlled such that tool 7 divides said plurality of stacked storage elements 2 into an upper stack of storage elements (above storage element 2B) and a lower stack of storage elements (below storage element 2A), said first storage element 2A being located at a spaced location from said second storage element 2B, when said second storage element contact surface 7B contacts said second storage element 2B, the moving means 4 moving such that the tool 7 with said first storage element contact surface 7A engaged with said first storage element 2A and with said second storage element contact surface 7B engaged with said second storage element 2A such that said second storage element 2B is located at a spaced location from said upper stack of storage elements (above storage element 2B) and said lower stack of said storage elements (below storage element 2A); and

a stacking area (in between two adjacent storage elements 2, as shown in Fig. 4) defined by an area of one storage element 2 in contact with another storage element in a stacked formation (e.g. Figs. 3-5 and para. 0048-0053).

Kyuono does not explicitly teach a control unit programmed to control movement of the moving means.

However it is known in the art to use programmed controllers for overall control of wafer handling in semiconductor processing, as per reference cited hereunder.

Harada et al teach a wafer handling apparatus comprising a pitch changing mechanism for facilitating extracting a specific wafer from a stack. Harada et al further teach that a programmed controller (not shown in Fig. 10) can be used for controlling a pitch control motor 87 with operative commands from a main control apparatus 71 (e.g. Figs. 10, 11 and col. 7, line 64 to col. 8, line 62). It would be obvious to control the moving means of Kyouno by programming the control unit of Harada et

al to enable automate the complete cycle of wafer handling and extraction to obtain improved through-put.

Therefore it would have been obvious to one of ordinary skills in the art at the time of the invention to provide a programmed controller for controlling the moving means as taught by Harada et al in the apparatus of Kyouno to enable automate the complete cycle of wafer handling and extraction to obtain improved through-put.

Regarding Claim 2: Kyouno teaches the storage elements 2 are stacked directly on one another (Fig. 4).

Regarding Claim 3: Kyouno teaches wherein the storage elements 2 are handled at their stacking area for producing an increased distance between two consecutive storage elements (through tool 7), whereby one of the storage elements 2 is accessible for a deposit or a removal of said substrate (Figs. 4, 5).

Regarding Claim 5: Kyouno teaches the storage elements 2 are ring shaped (Fig. 4).

Regarding Claim 8: Kyouno teaches the storage elements 2 arranged on top of one another form a laterally enclosed space (Fig. 8).

Regarding Claims 12 and 13: Applicant has invoked 35 USC 112 6th paragraph for the claim limitation "means for increasing stability and /or positioning accuracy of superimposed storage elements" for which the structure disclosed by the applicant comprises centering elements, which are attached at the storage elements and accurately align the storage elements in relation to one another (paragraph 0018).

Kyouno teaches linear guides 6 (means for increasing stability and/or positioning accuracy, and centering means) of superimposed storage elements 1, which cooperate to accurately align the storage elements 1 (Figs. 4, 5 and para. 0050).

Regarding Claims 15-17: Kyuono teaches the two contact surfaces 7A, 7B are offset against one another in the stacked direction of the storage elements 2. Kyuono further teaches that the relative

mobility of the two contact surfaces 7A, 7B is provided through moving means 4, and the tool 7A, 7B is also movable in groove 3 (in a direction parallel to the surface of the substrate 41 (Figs. 4, 5).

Regarding Claim 20: Kyouno teaches the pitch of upper stack of storage elements (above storage element 2B, and lower stack of storage elements (below storage element 2C) is not changed when the tool 7 releases one of storage element (e.g. storage element 2A) [para. 0051].

Claims 6, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kyouno (US 2002/0018703) in view of Harada et al (US 5,112,641) as applied to claims 1-5, 8, 12, 13, 15-17, 20 and further in view of Kato et al (US 5,752,609).

Regarding Claims 6, 7: Kyouno in view of Harada et al teaches means for depositing 2d comprises inwardly directed projections for engaging said substrate such that said substrate is deposited above a ring section of the storage element, but do not teach the means for depositing comprise upwardly directed projections for engaging the substrate.

Kato et al teach a substrate holder assembly comprising storage elements 63 and having upwardly directed projections 52a, 52c (means for depositing) for supporting a substrate W on each storage element. Kato et al further teach that the projections 52a, 52c have horizontally directed contact surface (e.g. Fig. 5 and col. 4, line 64 to col. 5, line 33).

It would have been obvious to one of ordinary skills in the art at the time of the invention to provide upwardly directed means for depositing on each storage element as taught by Kato et al in the apparatus of Kyouno in view of Harada et al to provide support to the substrates with minimal contact area to minimize damage to the substrate.

Claims 9-11, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kyouno (US

2002/0018703) in view of Harada et al (US 5,112,641) as applied to claims 1-5, 8, 12, 13, 15-17, 20 and further in view of Tanaka et al (US 2002/0002946).

Regarding Claim 9: Kyouno in view of Harada et al teach all limitations of the claim except a means for producing clean air such that a clean room atmosphere is produced in the enclosed space.

Applicant has invoked 35 USC 112, 6th paragraph for claim limitation "means for producing clean air ----------in the entire enclosed space", for which the disclosed structure is reference number 20 clean air unit (Figure 1 and para. 0060).

Tanaka teaches an apparatus comprising a stack of substrates 31 contained in a transfer container 30 filled with clean air (means for producing clean air) so as to produce a clean room atmosphere (e.g. Fig. 3 and para. 0061).

Therefore it would have been obvious to one of ordinary skills in the art at the time of the invention to provide a means for producing clean air as taught by Tanaka et al in the apparatus of Kyouno in view of Harada et al to obtain a clean environment in the device thus minimizing the contamination of substrates.

Regarding claim 10: Tanaka et al teaches that an overpressure can be produced in the interior of the transfer device 30 (para. 0061).

Regarding Claim 11: Tanaka et al teach clean gas flows into and out of the transfer container 30 (means for producing clean air). It would be obvious to control the in- flow and discharge of this clean gas to maintain laminar flows adjacent the substrates [para. 0061].

Regarding Claim 22: Tanaka et al teach that clean air is circulated at higher pressure in the transfer device 30. Further, claim limitation pertaining to use of nitrogen as a circulating gas instead of clean air pertains to contents of apparatus during an intended use and is not considered significant for determining patentability.

In this connection courts have ruled:

Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969).

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kyouno (US 2002/0018703) in view of Harada et al (US 5,112,641) as applied to claims 1-5, 8, 12, 13, 15-17, 20 and further in view of Davis et al (US 4,966,519).

Regarding Claim 21: Kyouno in view of Harada et al teach all limitations of the claim except sealing means for sealing storage elements.

Applicant has invoked 35 USC 112, 6th paragraph for the claim limitation "sealing means for pressing one storage element against another storage element such that said storage elements are sealed", and for which the disclosed structure includes storage rings having sealing elements and together with the cover plate and the bottom plate, they form a sealed transport container 200 for substrates, or alternately the transport container 200 can be inserted into an external sealable transport box.

Davis et al teach a wafer carrier 10 with storage elements 60 on which wafers are supported. Davis et al further teach that the storage elements 60 are continuous with a base that includes a vacuum seal surrounding the storage elements 60 (e.g. Fig. 1d and col. 6, lines 3-15).

Therefore it would have been obvious to one of ordinary skills in the art at the time of the invention to provide sealing means for sealing storage elements as taught by Davis et al in the apparatus of Kyouno in view of Harada et al to minimize contamination of wafers.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kyouno (US 2002/0018703) in view of Harada et al (US 5,112,641) and Tanaka et al (US 2002/0002946) as applied to claims 9-11, 22 and further in view of Davis et al (US 4,966,519) and .

Regarding Claim 23: Kyuono in view of Harada et al and Tanaka et al teach all limitations of the claim including a clean gas supplied into the device, but do not teach the device further comprising a cover plate and a lower bottom plate, a space in which said plurality of storage elements is located, said sealing means, said cover plate, said lower bottom plate and said nitrogen providing clean room conditions within said space.

Davis et al teach a wafer carrier 10 with storage elements 60 on which wafers are supported. Davis et al further teach that the storage elements 60 are continuous with a base that includes a vacuum seal surrounding the storage elements 60. Davis et al also teach device comprising a cover 14, a bottom plate 202 and in which plurality of storage elements 60 are located. Davis et al additionally teach said sealing means, said cover plate 14, said lower bottom plate 202 create a sealed space (in which clean room conditions can be provided by blowing an inert gas) [e.g. Fig. 1d and col. 6, lines 3-15].

Therefore it would have been obvious to one of ordinary skills in the art at the time of the invention to provide the storage device with a cover and a bottom plate as taught by Davis et al in the apparatus of Kyouno in view of Harada et al and Tanaka et al to obtain a clean space and minimize contamination of wafers.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RAKESH K. DHINGRA whose telephone number is (571)272-5959. The examiner can normally be reached on 8:30 -6:00 (Monday - Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571)-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Rakesh K Dhingra/
Examiner, Art Unit 1792

/Karla Moore/
Primary Examiner, Art Unit 1792